

CLAIMS

1. A digital signal receiver comprising:

a reference signal generator for generating a first reference signal;

5 a base band transform circuit for converting a first high-frequency signal modulated by a digital signal into a base band signal with using the first reference signal;

a frequency divider to divide the first reference signal;

a frequency multiplier to multiply a frequency of a signal output
10 from the frequency divider; and

a digital demodulator to demodulate a signal output from the base band transform circuit with using the signal output from the frequency multiplier as a reference signal.

15 2. The digital signal receiver of claim 1, further comprising a frequency converter for receiving a second high-frequency signal modulated by the digital signal and converting a frequency of the second high-frequency signal to generate the first high-frequency signal.

20 3. The digital signal receiver of claim 2, wherein the frequency converter converts the second high-frequency signal into the first high-frequency signal with using the first reference signal.

4. The digital signal receiver of claim 1, wherein the first
25 high-frequency signal is modulated by the digital signal by Orthogonal Frequency Division Multiplexing system, and the digital demodulator comprises an Orthogonal Frequency Division Multiplexing demodulator.

5. The digital signal receiver of claim 1, wherein the base band transform circuit comprises an orthogonal base band transform circuit operable to

5 convert the first high-frequency signal into a first base band signal and a second base band signal orthogonal each other and
 output the first base band signal and the second base band signal.

6. The digital signal receiver of claim 5, wherein the orthogonal base
10 band transform circuit includes

 a 90°-phase shifter for shifting a phase of the first reference signal by 90 degrees,

 a first mixer for mixing the first reference signal with the first high-frequency signal to convert the first high-frequency signal into the first
15 base band signal, and

 a second mixer for mixing the second reference signal with the first high-frequency signal to convert the first high-frequency signal into the second base band signal.

20 7. The digital signal receiver of claim 1, further comprising a device including the frequency divider and at least one of the base band transform circuit and the frequency converter.

8. The digital signal receiver of claim 1, further comprising a device
25 including the digital demodulator and the frequency multiplier.

9. The digital signal receiver of claim 1, further comprising a low-pass

filter for receiving a signal output from the frequency divider and outputting a signal to the frequency multiplier.